

## REMARKS

The Office Action dated 30 JANUARY 2004 indicates that claims 1-36 are pending, of which claims 1-36 are rejected under 35 U.S.C. 112.

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### CLAIM REJECTIONS – 35 USC 112

**Applicant respectfully requests withdrawal of the rejection of Claims 1-36 under 35 U.S.C. 112, second paragraph.**

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Section 3 of the Office Action states that,

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"Claims 1-36 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for optoelectronic or photonic device having a support structure having the position changes by modifying a portion of the material of the support structure including at least one of density change and an internal stress change and also crystalline phase changes. More specifically, the current specification does not enable any person in the skilled in the art to which it pertains, or which it is most nearly connected, to make the invention commensurate in scope with these claims without undue experimentation. To support the assertion the examiner notes that the specification is completely silent regarding the support structure material change, what are the source use to change the support structure material. In fact, the only mention active alignment process."

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Applicant gratefully acknowledges the Examiner's recognition that the specification is enabling for optoelectronic or photonic devices as stated in the Office Action. However, Applicant respectfully disagrees with the Office Action statement that the current specification does not enable any person skilled in the art to make the invention commensurate in scope with the claims without undue experimentation. Upon

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reconsideration of Applicant's specification, it will become clear that each of the items noted in support of the assertion are addressed so as to obviate the assertion.

The Office Action states that "the specification is completely silent regarding the support structure material change." However, the specification offers numerous examples of support structure material changes. Applicant directs the Examiner's attention to Applicant's specification page 10, line 24 through page 11, line 4 where it states:

"Examples of the types of material property changes that can be used in practicing embodiments of the present invention include crystalline structure changes and atomic arrangement changes. Specifically, if a portion of support structure 110 is converted from a first crystalline phase to a second crystalline phase, having a different density so that a dimension of a portion of support structure 110 is modified, then support structure 110 will take on new dimensions in response to the dimension change of the portion, such as portion 115 and portion 120, of the support structure that was converted. For example, a change from body centered cubic structure to face centered cubic could produce this kind of result for some materials."

Additional examples can be found in Applicant's specification page 11, lines to 6-18

where it states:

"Additional examples of suitable material changes include a change in the crystal structure, a change in the ratio of crystalline to non-crystalline material, conversion to another material having different structural properties, a change in chemical composition, and a change in chemical composition profile. For instance, a change can be achieved by causing a change in the chemical composition of the structural element. The chemical composition change can result in a change in the dimensions of at least a portion of support structure 110, such as portion 115 and portion 120, as a result of changes in the density of the material. This dimension change causes the position changes of optical component 150."

Other specific examples can be found in Applicant's specification page 11, lines 20-26; page 12, lines 21-28; page 13, lines 7-19; page 13, lines 21-30; and page 14, lines 4-15.

5 In response to the comment in the office action "what are the source use to change the support structure material," Applicant directs the Examiner's attention to Applicant's specification where there are numerous examples of sources that can be used to change the support material. Please see Applicant's specification page 12, lines 13-19 where it states:

10 "The microstructure of a solid can be changed by mechanical, thermal, electromagnetic, or laser energy, which can result in a change in the dimension of the crystal lattice. Furthermore, most crystalline solids have slip-bands along which the crystal may slip and  
15 form a substantially permanent deformation."

Please see Applicant's specification page 11, line 28 through page 12, line 5 where there is a specific example stated as:

20 "In some embodiments of the present invention, the composition change can be sufficient for producing a different material. As an example, a portion of or all of a support structure made of aluminum can be converted into aluminum oxide by the addition of oxygen to the support structure. The density of  
25 aluminum and the density of aluminum oxide are significantly different; converting a portion of or all of the support structure from one to the other would produce a dimension change for the support structure. Similarly, other material systems can also  
30 be used to produce dimension changes."

For more examples, please see Applicant's specification page 12, line 30 through page 14, line 15.

35 Applicant acknowledges that the broadest claims, such as claim 1, do not indicate specific materials of construction and specific methods of producing the changes in the support structure. However, Applicant does not believe that recitation of specific materials of construction and specific methods of producing the changes in the

support structure is required in the broadest claim. Applicant's belief is further strengthened because no references were cited in the rejections; more specifically, the rejections were based on enablement of the specification rather than cited references. Applicant believes that the requirements for an enabling disclosure are met in

5 Applicant's specification and drawings where material changes are taught (for examples see Applicant's specification page 11, lines 20-26; page 12, lines 21-28; page 13, lines 7-19; page 13, lines 21-30; and page 14, lines 4-15), where materials of construction are taught (for examples see Applicant's specification page 11, lines 30-32 and page 16, lines 24-32), and methods of producing the changes in the support structure are  
10 taught (for examples see Applicant's specification Fig. 3; page 12, line 30 through page 14, line 15; and page 16, lines 24-32) for one or more embodiments of Applicant's invention. Applicant even provides some discussion of the nature of the changes that occur for the materials of the support structure.

15 Clearly, Applicant's disclosure provides a person of ordinary skill in the art with the teachings needed to practice Applicant's invention. Applicant deems that Applicant's specification is sufficiently enabling so that a person of ordinary skill in the art could select specific details of embodiments of the present invention as a matter of designer choice. Furthermore, choices not specifically mentioned in the specification  
20 could be derived either based on the knowledge of a person of ordinary skill in the art or information from commonly available references such as textbooks and reference books on materials science.

Applicant acknowledges that some experimentation may be needed in order to  
25 practice some embodiments of Applicant's invention. However, the experimentation would not be undue, would be well within the acceptable standards for patents, and would primarily relate to optimizing the process for the specific design choices of a person of ordinary skill in the art for the particular application that the person has chosen.

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Furthermore, the examples of processes given by Applicant for producing the material property changes are well known processes that have been described in the technical literature and the patent literature. More specifically, laser processing of materials is well known, ion beam processing of materials is well known, electron beam processing of materials is well known, chemical vapor deposition is a well-known process, chemical etching is a well-known process, etc. In other words, Applicant teaches a method of positioning components on a support using processes such as the well-known processes just mentioned; Applicant is the first to teach these methods.

### CONCLUSIONS

In view of the foregoing remarks, further and favorable action in the form of a notice of allowance for claims 1-36 is believed to be next in order, and such action is earnestly solicited.

Please telephone the undersigned at (408) 396-1112 if there are any questions regarding this matter.

Respectfully submitted,



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